Docket No. 1454.1150

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:

Christian MENZEL et al.

Application No.: 09/308,303 Group Art Unit: 2681

Filed: May 17, 1999 Examiner: Y. Pan

For: METHOD AND SYSTEM FOR CONFIGURING RADIO INTERFACE IN A COMMUNICATION SYSTEM (AS AMENDED)

Commissioner for Patents
P.O. Box 1450
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BRIEF OF APPELLANTS

In a Notice of Appeal filed January 13, 2004, the Applicants appealed the Examiner's August 27, 2003 Office Action finally rejecting claims 18-34. A fee of $330.00 is being submitted herewith. Appellant's brief together with the requisite fee set forth in 37 CFR § 1.17(f) is submitted herewith.

I. REAL PARTY IN INTEREST

The real party in interest is Siemens Aktiengesellschaft, the assignee of the subject application.

II. RELATED APPEALS AND INTERFERENCES

Appellant, Appellants' legal representatives, and assignee are not aware of any other appeals or interferences which directly affect or be directly affected by, or having a bearing, on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Appealed claims 18-34 have been rejected.

IV. STATUS OF AMENDMENTS

An Amendment was filed on November 26, 2003 in response to the Final Office Action mailed August 27, 2003.

V. SUMMARY OF INVENTION

The present invention is directed to a method and base station system for configuration of a radio interface between a mobile station and a base station in a time-division multiplex mobile radio system for packet data transmission. As described in FIG. 3 and Tables 1-3 of FIG. 4, time slots for signaling in an uplink direction are allocated to mobile stations in accordance with a sequence which can be predetermined. The allocation is independent of packet data transmission from or to the mobile station. As a result of the fixed allocation of a time slot for signaling, even to mobile stations to which no physical channel is currently allocated, the base station can carry out continuous measurements with regard to the radio interface, in order to define a timing advance. When packet data transmission resumes, immediate valid measurements are therefore available for configuration of the radio interface.

VI. ISSUES

An issue is whether claims 18-34 patentably distinguish over US Patent 5,590,133 to Billström et al. A key subissue is whether the Billström patent teaches

> allocating, by...[a] base station, one time slot exclusively for signaling in...[an] uplink direction from a respective mobile station in accordance with a predeterminable sequence of the mobile stations, where even if the respective mobile station does not transmit any packet data for the duration of a current and next macroframe, the respective mobile station may transmit in the allocated time slot for signaling

(claim 18, last 5 lines).

VII. GROUPING OF CLAIMS

Claims 18-34 stand or fall together.

VIII. ARGUMENT

In the Final Office Action, the Examiner rejected claims 18-24, 33 and 34 under 35 U.S.C. § 102(b) as being anticipated by Billström et al. (USP# 5,590,133). The Examiner also rejected claims 25 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Billström et al. in view of Hamalainen et al. (USP# 5,640,395), and claims 31 and 32 under 35 U.S.C. § 103(a) as being unpatentable over Billström et al. and further in view of Hamalainen et al. and Sowles et al. (USP# 5,659,545).

Billström et al.

Billström discloses that a packet data channel (PDCH) is allocated temporarily on user demand or, in case of continuous packet data traffic, on a semi-permanent basis or dynamically adapted to the current load situation. The PDCHs are used for data transfer and associated control signaling. See column 6, line 66 - column 7, line 18 of Billström.

Billström also discloses that a mobile station (MS) is registered in its current Mobile Services Switching Center/Visitor Location Register (MSC/VLR) as being in packet data (PD) mode. Billström teaches that a Global System for Mobile Communications (GSM) provides

system mechanisms for fast packet transfer, including maintenance of authentication, avoiding time consuming authentication procedure, and maintaining routes from entities on the backbone network to the MS's current MSC, thereby limiting the need for Home Location Register (HLR) interrogation to the initial route establishment. See column 8, lines 47-67 of Billström.

Rejection of Claims 18-34

Billström teaches that packet data services subscribed to by users are available to a mobile station (MS) after a procedure that brings the MS from an initial GSM idle mode to a new "PD mode". This procedure may be initiated either by the MS making a request for packet data service or by the MSC, currently serving the MS, receiving a packet addressed to the MS. The procedure is based on standard GSM signaling and utilizes standard GSM authentication. The PD mode establishment procedure also includes initiating parameters for packet encryption/decryption in the MS and its current MSC/VLR. After completing the procedure, the MS is registered in its current MSC/VLR as being in PD mode. The system then provides access to PDCHs in any cell.

Thus, the mechanisms disclosed by Billström for accelerating the reestablishment of a packet data transmission after a long period of time rely on factors such as authentication that do not change while the mobile station is located within the coverage area of the MSC. There is no suggestion in Billström of any transmission of signaling data from the mobile station to the base station involving parameters related to transmission parameters of the radio interface.

In contrast to the teachings of Billström, a respective mobile station may transmit in an allocated time slot for signaling when no packet data is transmitted by the mobile station as recited, for example, in the last five lines of claim 18 of the present invention. Transmitting signaling data of a mobile station independently of packet data and even when packet data are absent, ensures that the base station also receives signaling messages from the mobile station when the mobile station transmits no packet data. According to the present invention, it is possible to provide continuously updated radio parameters at the base station which can immediately be used for configuring the radio interface when packet data transmission is resumed.

Further, Billström discloses that the initiation of packet transfer to the mobile station from its currently serving MSC is guided by monitoring the mobile station's cell location based on any

previous packet transfer. See column 9, lines 1-12 of Billström. Depending on the recentness of cell location information and other mobile station operational parameters, packet transfer is initiated with or without paging. In column 10, lines 25-31, Billström discloses that operational parameters relating to encryption, timers, cell location, peer entities, MS submode, subscription parameters, and location area identity, are stored in the PD controller database.

Thus, in Billström, the reestablishment of packet transfer is only based on previous packet transfers and general parameters, and not on more recent additional signaling from the mobile station since the last data packet. Moreover, the fact that the recentness of the latest packet transfer is evaluated, clearly indicates that there is no continuous update mechanism for any parameter by additional signaling in between two consecutive packet transmissions.

In contrast to Billström, the present invention uses an exclusively assigned time slot for signaling, which allows for continuous updating of relevant parameters for faster reestablishment of the packet transfer.

As described above, Billström does not disclose or suggest the operation recited in the last five lines of claim 18 of the subject application. Claim 33 recites limitations similar to claim 18. Therefore, Billström also does not disclose the features recited in claim 33 of the subject application. Claims 19-32 and claim 34 depend from claims 18 and 33, respectively. Thus, for at least the reasons that claims 18 and 33 distinguish over the cited prior art, it is respectfully submitted that claims 19-32 and 34 also distinguish over the cited prior art.

IX. CONCLUSION

In summary, it is submitted that claims 18-34 patentably distinguish over the prior art. Reversal of the Examiner's rejection is respectfully requested.

The required fee in the amount of $330.00 is attached. If there are any additional fees associated with the filing of this Appeal Brief, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,
STAAS & HALSEY

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X. APPENDIX

18. A method for configuring a radio interface between a mobile station and a base station of a time-division multiplex mobile radio system for packet data transmission, the method comprising:

defining a transmission from a mobile station to the base station as an uplink direction;

defining a transmission from the base station to a mobile station as a downlink direction;

forming a channel by at least one time slot per time-division multiplex frame, wherein the packet data transmission from a plurality of mobile stations takes place via the channel;

combining frames to form a macroframe;

providing a time slot for signaling at cyclic intervals in the channel; and

allocating, by the base station, one time slot exclusively for signaling in the uplink direction from a respective mobile station in accordance with a predeterminable sequence of the mobile stations, where even if the respective mobile station does not transmit any packet data for the duration of a current and next macroframe, the respective mobile station may transmit in the allocated time slot for signaling.

19. The method as claimed in claim 18, further comprising:

determining a timing advance for the respective mobile station from transmissions by the mobile station in the allocated time slot; and

transmitting the timing advance in a time slot for signaling in the downlink direction to the corresponding mobile station.

20. The method as claimed in claim 18, further comprising:

defining the timing advance and values for a transmission power setting independently of one another.

21. The method as claimed in claim 20, further comprising:

defining, additionally, the timing advance and the values for the transmission power setting from the time slots for packet data transmission.

22. The method as claimed in claim 18, further comprising:

using transmission block types of a predetermined size for specific configuration data in the time slots for signaling in the uplink direction.

23. The method as claimed in claim 18, further comprising:

transmitting configuration data defined in the downlink direction in time slots for packet data transmission.

24. The method as claimed in claim 18, further comprising:

providing, by the base station, the timing advance for the configuration of the radio interface without being controlled by a base station controller.

25. The method as claimed in claim 18, further comprising:

combining a plurality of time slots for signaling to form a signaling block.

26. The method as claimed in claim 25, further comprising:

combining the time slots for signaling in accordance with a sequence which can be predetermined, wherein remaining time slots are provided for an adjacent cell measurement of the mobile station.

27. The method as claimed in claim 18, further comprising:

providing information in time slots for signaling with additional coding.

28. The method as claimed in claim 18, further comprising:

enabling the packet data transmission to take place in both the uplink and downlink directions independently of one another.

29. The method as claimed in claim 18, further comprising:

designating, additionally, the mobile stations for packet data transmission by abbreviated identifiers; and

allocating, via the time slots for signaling in the downlink direction, one or more time slots for signaling in the uplink direction to the mobile stations by means of indicator messages which contain abbreviated identifiers and time slot designations.

30. The method as claimed in claim 18, further comprising:

transmitting, by a mobile station per time slot for signaling in the uplink direction, a self-contained message which contains a reception level of the mobile station.

31. The method as claimed in claim 18, further comprising:

providing transmissions, from the mobile station in the time slots for signaling allocated to it, access blocks having an extended preceding or subsequent guard time, whose transmission time results from a preceding transmission time, a signaled timing advance and an offset value.

32. The method as claimed in claim 31, further comprising:

choosing the offset value such that a range which corresponds to the offset value is greater than the distance which the mobile station can travel between two transmissions for timing advance definitions at a maximum permissible speed.

33. A base station system for configuring a radio interface between a mobile station and a base station of a time-division multiplex mobile radio system for packet data transmission, comprising:

a base station;

a plurality of mobile stations, wherein a transmission from a mobile station to the base station is defined as an uplink direction, and a transmission from the base station to a mobile station is defined as a downlink direction;

a channel formed by at least one time slot per time-division multiplex frame, wherein the packet data transmission from the plurality of mobile stations takes place via the channel;

a macroframe formed from a combination of frames;

a time slot for signaling provided at cyclic intervals in the channel; and

a control device to allocate time slots to the plurality of mobile stations, wherein just one time slot for signaling in the uplink direction is allocated exclusively to a respective mobile station according to a predeterminable sequence of the mobile stations, the allocation being independent of any packet data transmission so that the mobile station may transmit in the time slot allocated for signaling even if the mobile station does not transmit any packet data for the duration of a current and next macroframe.

34. The base station system as claimed in claim 33, wherein timing advances for the mobile stations are transmitted as configuration data for the plurality of mobile stations in a time slot for signaling in the downlink direction.